

CERL Security Working Group (SWG)

Vienna Summer School

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Libraries and Collections in times of climate crisis

Implementing new technology, refurbishing infrastructure of our buildings, considering use of energy, reducing climate footprint, reducing climate impact, funding, small measures big impact, raising awareness with all staff in the building and other thoughts...

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Introduction

How are you paying for the recent spike in energy bills?

Are Estates Departments delaying maintenance, plant upgrades or repairs to meet their budget limits?
Is staff training and other soft targets being postponed?

Next year, will other budgets be raided to make sure the lights stay on and the climate control works?

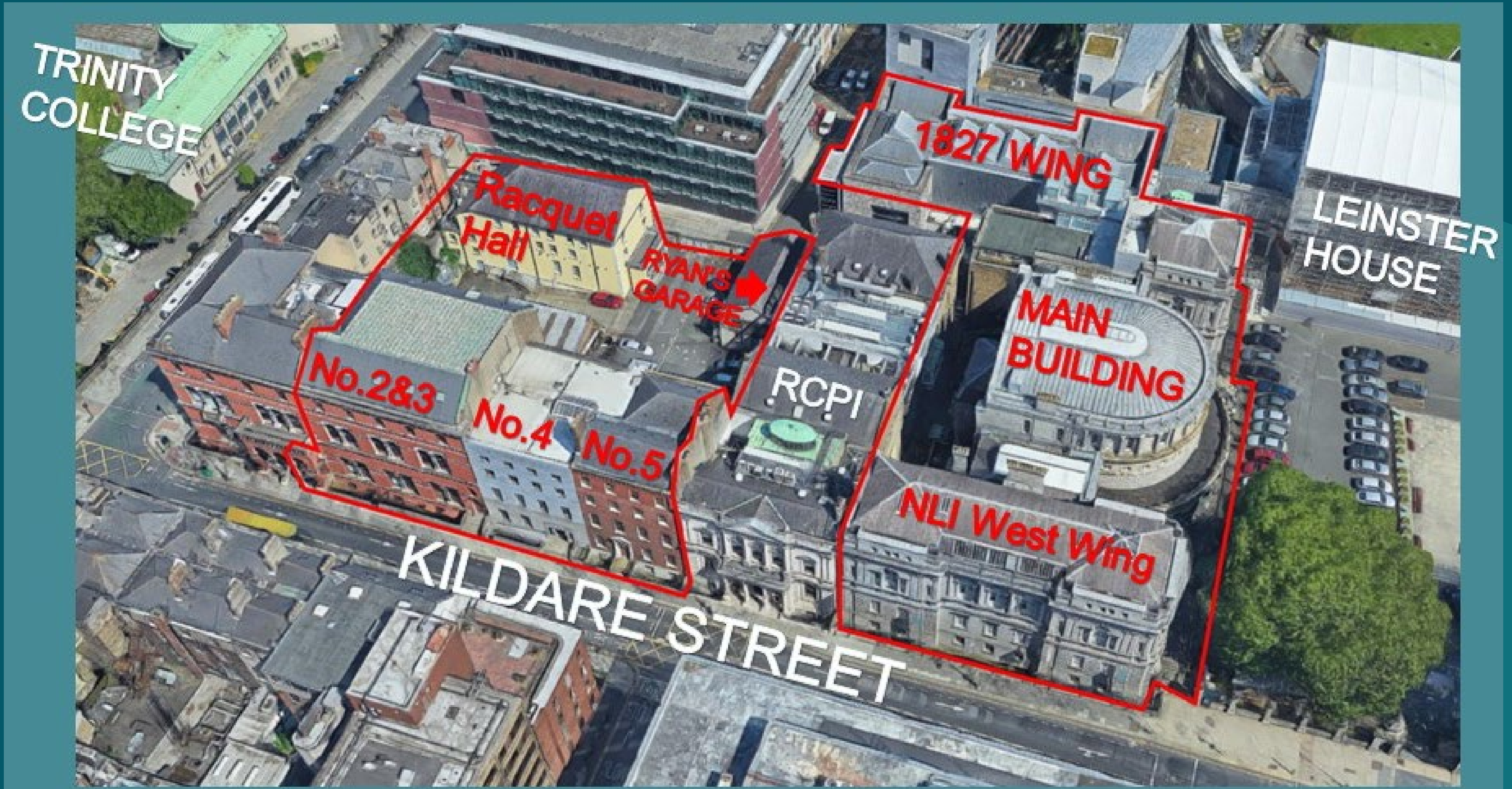
Climate change brings new, or increased, risks to our collections as we race to adapt our buildings to increased energy costs, as well as the higher temperatures & humidity, heavy rainfall, flooding risks.

-So it increases the likelihood of many risks we already faced.

Those who have already taken climate change measures will be less affected

Those who rely heavily on mechanical building services based solutions for repository climate control will be more affected

National Library of Ireland (main campus)





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NLI ESTATE (cont'd)



Moli, Museum of Literature Ireland
UCD/ NLI Partnership, UCD Buildings



Bank of Ireland Cultural Centre
Westmoreland Street
Seamus Heaney, Listen Now Again
BOI/NLI Partnership,
BOI Buildings.



National Photographic Archive, Temple Bar.
Exhibition space, photographic collection storage
& reading room. Separate tenant to upper floors.



TCD Santry Storage Facility
TCD/ DCC/NLI shared facility.
86%:11%:3%



Leased Warehouse Storage Facility
Parkwest NLI / NGL shared facility.
66%:33%



Contract with commercial storage provider,
Glenbeigh Records Management (GRM)

General Background

- Each organisation needs to adapt according to its own circumstances, building types and structures.
- NLI, as a national cultural institute, is provided with a maintenance service by the state property service – The Office of Public Works(OPW).
- However, it still comes down to managing the relationships to ensure our needs are addressed as OPW have a never ending list of requests for resources from the central government departments.
- Having our maintenance outsourced (to a government body) means we are never trying to balance whether to buy a collection or repair a roof!
- But outsourcing removes the level of control, decision making and prioritisation to others.
- Difficult to identify an ideal structure.

Climate Change Risks- Why does CERL SWG care?

Increased rainfall in amount and intensity leads to

- Overflowing rainwater gutters & downpipes leading to water and damp penetration
- Rapid water build up in parapets not escaping fast enough leading to water rising above lead flashings and saturating walls.
- Overflowing and back-flowing drains – increased local flooding
- Wet / damp walls are poor insulators and lead to increased energy use.
- Increased moisture leads to increased humidity and to mould growth internally and increased infestation risk.
- Hotter summers leads to increased energy use in cooling and dehumidification

Climate Change Risks- Energy Crisis

Current Energy Crisis

- Risk (or certainty?) of energy rationing this winter
 - Sporadic or lengthy power cuts?
 - Loss of Heating/ Conditioning systems?
 - Loss of Wi-Fi and IT systems, affecting monitoring and security?
- Risk of High Energy Bills – what has to be omitted to pay these bills?
- What is the contingency plans for collection management and security during a prolonged, or repetitive power cuts?
- Fluctuating conditions impacting on collection



Working with Historic Property

Typically assumed (in Ireland) to be buildings built c.pre-1945.

That is, traditionally built solid masonry construction.

Generally, these buildings are protected, or 'listed' for preservation.

Commonly people think you can do nothing to these buildings.

However, this is not true.

These building require the care and attention as cultural entities in the same way that our collections require care and attention.

Therefore any works intended should be well considered and proposed in that context.

Working with Historic Property

Conservation Strategy: United Nations/ ICOMOS Charters

Venice Charter (1964):

In summary, full research prior to commencement, recording of all work, minimal intervention, repair rather than replace, and all interventions to be clearly distinguishable.

Burra Charter (1979):

Real significance is fully retained, recovered and revealed.

Granada Convention (1985):

Encourages the use of protected properties for needs of contemporary life.

The Nara Document on Authenticity (1994):

Conservation work protects the authenticity of the structure

Working with Historic Property

Irish Govt Guidelines for Planning Authorities:

“Architectural Heritage Planning Guidelines for Planning Authorities”. (2011)

- Keeping a Building in Use
- Researching and Analysing
- Using Expert Conservation Advice
- Protecting the Special Interest/ Significance
- Promoting Minimum Intervention
- Respecting Earlier Alterations of Interest
- Repairing Rather than Replacing
- Promoting Honesty of Repairs and Alterations
- Using Appropriate Materials and Methods
- Ensuring Reversibility of Alterations
- Avoiding Incremental Damage

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Therefore change is expected, it is the justification, extent and methodology that needs to be decided

New vs Old

Question everything!

NLI building stock

- Main building dates from 1890
- Townhouses dating from 1745
- Off-site 'temporary' storage built 1990s
- One off site exhibition & archive built 1995

Energy performance KWH/year/ m2

- 60 KWh/m2
- 74 KWh/m2
- 192 KWh/m2
- 600 KWh/m2

The historic buildings with high ceilings and no modern insulation interventions perform far better than late 20th Century buildings!

New V's Old Understand the concept of 'embodied energy' or embodied carbon.



Embodied Carbon vs. Operational Carbon. Understanding Carbon; Stacy Smedley, SKANSKA/CLF.

MALADAPTATION: A new threat to cultural heritage
'inappropriate works to upgrade energy efficiency, which damage the character or the fabric of historic buildings'

- Embodied energy is becoming a big issue
- Studies¹ show that it can take 60-70 years for a new highly insulated building to save energy compared to upgrading existing buildings
- Operational carbon will become cheaper and more available with renewable energy
- Embodied carbon is a once-off cost to environment
- Existing building upgrades can provide more sustainable results than new build projects when considered fully

M and R – Monitoring & Reporting

- NLI part of an Irish Government Public Bodies Energy Reporting System.
- Established in 2009, using energy Use in 2009 as a Benchmark year.
- Initial Target 33% reduction in energy by end of 2020
- New Target 51% reduction by 2030
- From 2021 recording of international travel now being measured

M and R – Monitoring & Reporting

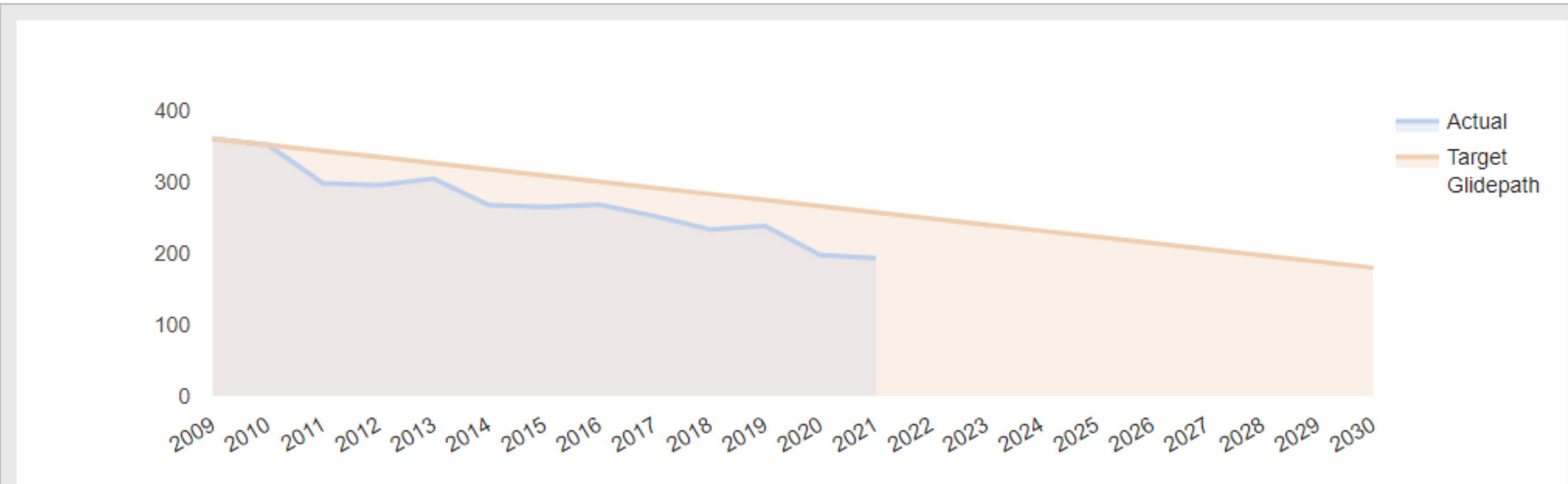
Since Energy Efficiency Baseline to 2021

Energy Savings: 46.4% lower	💡
Change in Energy Consumption: 46.4% lower	💡

Energy Performance Indicators - 2021

2021 EnPI = 194 $\frac{\text{kWh}}{\text{Floor Area (m}^2\text{)}}$

Target EnPI = 181 $\frac{\text{kWh}}{\text{Floor Area (m}^2\text{)}}$



Level 2 Energy Performance Indicators (2021)

2.3% better than 2020	💡	Electricity = 120 $\frac{\text{kWh}}{\text{Floor Area (m}^2\text{)}}$	10.1% worse than 2020	💡
46.4% better than energy efficiency baseline	💡	Thermal = 74 $\frac{\text{kWh}}{\text{Floor Area (m}^2\text{)}}$	17.4% better than 2020	💡
7.2% improvement required by 2030	💡	Transport = 0 $\frac{\text{kWh}}{\text{Floor Area (m}^2\text{)}}$	0.0% worse than 2020	💡

NLI performance 46.4% energy reductions compared to 2009 Baseline to date

SEAI presented the M&R program to the Interregional partners of the EMPOWER project who were impressed with the system.

The Irish program is now published in the Interreg Europe Policy Learning Platform Good Practice Database.

NLI Energy Reductions

What measures we implemented ?

- No big project (yet), no one thing.
- Steady replacement of lighting to LED, and movement sensor switching where appropriate.
- Installing Thermostats Radiator Valves (TRVs)
- Boiler replacement & upgrades (efficiency % & time clocks etc)
- Including thermal insulation upgrades (eg. secondary glazing & improved double glazing)
when carrying out any fit-outs or other works

NLI Energy Reductions

AND

- Staff awareness, education and buy-in:
 - Staff behaviour responsible for typically 20% of energy usage
 - Lectures, posters, reminders and updates of success to date
 - Turning off lights when leaving office
 - Turning off PCs and Monitors.*
- Maintaining Thermostats Radiator Valves at ‘3’ setting (or below for circulation areas)

PC energy use

Energy usage in computers while running is varied but can be up to 150-200 W.

What can be done from a staff perspective?

- **Switching off the obvious answer.**


Negatives:

- Takes a little longer time to switch back on
- Perhaps uncertain if you can switch off


Positives:

- No apparent immediate positives

How much can one running computer do?




optimising Power @ Work



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Energy Reduction



Thermostatic Radiator Valves (TRV)

Over 70 TRV's fitted to 2/3 Kildare St since March

The actual temperature in each area is controlled by the radiator thermostats

Radiators blocked by furniture or curtains cannot circulate the heat around the room.

TRV Settings

0	*	1	2	3	4	5
OFF	7°C	12°C	16°C	20°C	24°C	28°C

Office areas: 3
Corridors: 2
Room not in use: *

19

*Includes setting most appropriate Off/ hibernation or sleep mode'

‘The European Green Deal’

approved 2020

Climate change and environmental degradation are an existential threat to Europe and the world. To overcome these challenges, the European Green Deal will transform the EU into a modern, resource-efficient and competitive economy, ensuring:

- no net emissions of greenhouse gases by 2050
- economic growth decoupled from resource use
- no person and no place left behind

‘The European Green Deal is also our lifeline out of the COVID-19 pandemic.’

[A European Green Deal | European Commission \(europa.eu\)](https://european-council.europa.eu/media/126584/attachment/data/126584/1/191022_01_en.pdf)

10 Recommendations

Published 05/09/2022



Experts collected a total of 83 good practice examples from 26 countries, which illustrate both the impact of climate change on cultural heritage and the potential of cultural heritage solutions in the context of climate change.

RECOMMENDATIONS FOR THE EUROPEAN UNION AND MEMBER STATES

The open method of coordination (OMC) expert group makes the following 10 recommendations.

1. The European Commission must emphasise the importance of cultural heritage in times of climate crisis and propose new actions at European level to adapt cultural heritage and enable it to mitigate climate change in a new Commission communication, for instance in an update to the new European agenda for culture.
2. The European Commission must ensure structured cooperation at all levels of governance between EU directorates-general responsible for climate change and/or cultural heritage.
3. The European Commission must develop and regularly update, together with the Member States and associated countries, a European climate change cultural heritage risk assessment map by 2025.
4. The European Commission must initiate a full review of the economic costs of climate change adaptation/mitigation solely for cultural and natural heritage.
5. The European Commission must establish a common European platform for exchange, discussion, expertise and knowledge sharing about the impacts of climate change on cultural heritage and its contributions in the fight against climate change, providing a central entry point for cultural heritage in times of climate change.
6. National-/regional-level and local-level administrations must include cultural heritage and the cultural domain in all actions and plans addressing mitigation of and adaptation to climate change. Actions must be undertaken to fully integrate culture and cultural heritage issues into environmental sustainability and climate policymaking both at national/regional/local levels and international level.
7. National and regional authorities must build capacity and multidisciplinary expertise to ensure the safeguarding of cultural heritage against climate change through education, training and upskilling at all levels. The European Commission, through relevant EU-funded programmes, could support these initiatives.
8. National authorities must recognise the importance of research as the indispensable driver to advance the cultural heritage sector. In addition to EU-funded programmes, governments must initiate research programmes at national level to enhance knowledge sharing and cooperation between cultural heritage experts and climate science to create data collection mechanisms, collect and analyse data, and develop tools, infrastructures, best practices and strategies.
9. National-/regional-level and local-level governments and institutions must encourage investment immediately and incentivise the safeguarding of cultural heritage against climate change through monetary and fiscal policies.
10. The ministries and administrations of Member States and associated countries and local and regional authorities must ensure cooperation at all levels of governance and in relevant policy domains, especially in planning bodies, between those responsible for climate change actions and those responsible for cultural heritage.

‘Never let a good crisis go to waste’

(Winston Churchill quote from working to form the United Nations after WWII)

- All countries will have signed up to climate change commitments.
- Governments & EU have climate change budgets, seek your share by explicitly stating climate action initiatives
- Use those commitments to add climate change measures to any projects
- Demonstrate project outcomes that include ‘Climate Action’ returns
- Conversion of energy systems to low carbon options
- Money saved on reduced energy bills can be diverted to collections, improved training & security projects etc.

Conclusion/ Summary

- Climate Change is a significant risk to our buildings, our collections and our budgets
- Even the smallest actions can grow to have an impact both within the organisation and for society at large
- You don't need to wait for the 'big project or solution' to start making an impact
- For many a hybrid approach maybe the most likely solution
 - Maintain & upgrade some existing premises
 - Add new high performance low energy/passive buildings
- Every organisation needs to find the solutions that matches their circumstances

Thank you

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